



## THE BEST OF 2005: LOOKING BACK

At the end of 2005, nearly all the flight hardware has been successfully integrated to the spacecraft. Throughout the year, mission team members assembled and tested the various subsystems and instrumentation aboard the Dawn spacecraft in preparation for launch.

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## WINTER

### ATLO Begins

On January 19, Dawn officially entered the Assembly, Test, and Launch Operations (ATLO) phase. During this period leading up to launch, the



individual components of the flight system come together and undergo extensive testing. Many agree with Project Manager Tom Frascetti's description of ATLO as, "the most exciting and significant phase of mission development." View Dawn spacecraft assembly images in the mission Image Gallery at:

<http://dawn.jpl.nasa.gov/multimedia/index.asp>

### Who's Who in the Dawn Mission

When Principal Investigator Chris Russell set out to assemble his team, he sought professionals who demonstrated exceptional talent in their respective fields and an ability to collaborate with others effectively. The *Meet the Team* section of the Web site features interviews with the Principal Investigator, Deputy Principal Investigator, Project Manager, and Payload Manager for the Dawn mission:



<http://dawn.jpl.nasa.gov/people/index.asp>

### *The Aster's Hoity-Toity Belt Debuts*

Education and Public Outreach (E/PO) team member, Jacinta Behne from Mid-continent Research for Education and Learning (McREL), presented the story *The Aster's Hoity-Toity Belt* to a captive audience of



informal educators who attended the National AfterSchool Association Conference in San Antonio, Texas on February 26. Set in the Great Carousel of the Skies—officially known as the main asteroid belt—this tale of two cousins, gentle giant Ceres and feisty Vesta, weaves together elements of fiction with factual Dawn mission content. *Dawn Kids* features the complete text with illustrations, an annotated version for leaders, and a text-only version that enables learners to create their own illustrations. All materials are available at:

<http://dawn.jpl.nasa.gov/DawnKids/index.asp>

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## SPRING

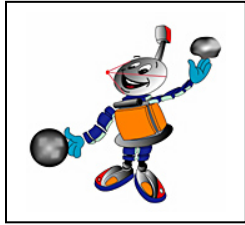
### Teachers Test Drive E/PO Materials

During the Kansas Association of Teachers of Science Conference on April 22-24, McREL E/PO team members John Ristvey and Dr. B.J. McCormick offer science educators a sneak preview of two Dawn mission activities. One activity used a potato to model asteroid light curves and the other focused on the spacecraft ion propulsion system. Teachers shared their classroom expertise as they provided feedback to inform the revisions of



these learning activities. All Dawn educational materials are pilot and field tested in

classrooms and informal settings. To learn more about upcoming field-testing opportunities, visit <http://dawn.jpl.nasa.gov/education/index.asp>



### **Dawn Kids Inspires Young Space Enthusiasts**

In the spring, Dawn E/PO released a host of fun activities for youngsters who like to color, solve puzzles, navigate through

a maze, and even construct a model of the Dawn spacecraft. Encourage the next generation of space explorers with *Dawn Kids* by downloading these activity sheets at: <http://dawn.jpl.nasa.gov/DawnKids/index.asp>

### **JPL Open House**

Visitors at the annual Jet Propulsion Laboratory's Open House, held in Pasadena, California on May 14 and 15, could build a Dawn spacecraft



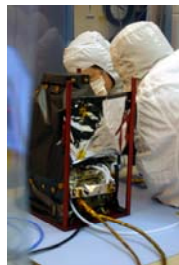
model, see an actual ion engine (pictured above), and talk with mission team members about Dawn's intriguing science, technology, and upcoming journey to the asteroid belt. To learn more about an ion engine, experiment with the online simulation at: [http://dawn.jpl.nasa.gov/mission/ion\\_engine\\_interactive/index.html](http://dawn.jpl.nasa.gov/mission/ion_engine_interactive/index.html)

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## **SUMMER**

### **Framing Camera 1 Arrives**

Promising new views of old worlds, Framing Camera 1 (of two) arrived at Orbital Sciences Corporation in Dulles, Virginia at the end of August. In addition to the cameras, the science payload consists of a visible and infrared mapping spectrometer to reveal the surface minerals, and a gamma ray and neutron spectrometer to determine the elements that make up the outer parts of the asteroids. After testing with the spacecraft simulator, the camera successfully completed bench checkout. More information: [http://dawn.jpl.nasa.gov/feature\\_photo\\_current.asp](http://dawn.jpl.nasa.gov/feature_photo_current.asp)

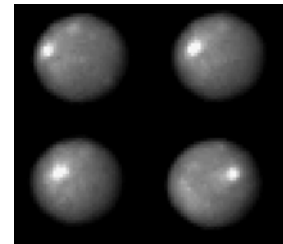


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## **FALL**

### **Hubble Unlocks Some of Ceres Mysteries**

Snapping 267 images of Ceres, Hubble's Advanced Camera for Surveys enabled a team of astronomers to study this minor planet. Their findings, which appeared in a letter to the journal *Nature* on September 8, revealed that Ceres shares characteristics of the rocky, terrestrial planets like Earth. According to Dr. Lucy McFadden, Dawn mission scientist and director of education and public outreach, "Ceres is an embryonic planet. Gravitational perturbations from Jupiter billions of years ago prevented Ceres from accreting more material to become a full-fledged planet." To learn more about the observations of Ceres, go to: <http://dawn.jpl.nasa.gov/science/index.asp>



### **Back to School with Dawn E/PO**

For use in classrooms and beyond, Dawn E/PO released engaging educational materials in October. Middle school teachers can transform their science classrooms into a time machine with a standards-aligned module that



investigates the scientific discoveries, technological advances, and historical events leading to the Dawn mission. Download *The History and Discovery of Asteroids* module at: [http://dawn.jpl.nasa.gov/DawnClassrooms/1\\_history\\_dawn/index.asp](http://dawn.jpl.nasa.gov/DawnClassrooms/1_history_dawn/index.asp)

For space history enthusiasts, *Journey Through Time*, an animated history of the discovery and exploration of asteroids is available at: <http://dawn.jpl.nasa.gov/DawnCommunity/index.asp>

Train yourself to distinguish between meteorites and "meteor-wrongs." Take the *Find a Meteorite* challenge by investigating several samples and determining which possess meteorite properties. This fun online experiment is available at: <http://dawn.jpl.nasa.gov/Meteorite2/experiment.asp>